

What is Claimed is:

1. A pulse jet printhead assembly comprising:
 - (a) a multiple die printhead comprising:
 - (i) an orifice plate comprising a plurality of orifices; and
 - (ii) a plurality of printhead dies present on a surface of said orifice plate in operational alignment with said orifices to produce a least one firing chamber; and
 - (b) a multiple reservoir housing affixed to said multiple die printhead.
2. The pulse jet printhead assembly according to Claim 1, wherein said assembly comprises from about 2 to about 100 distinct reservoirs.
3. The pulse jet printhead assembly according to Claim 1, wherein the ratio of reservoirs to dies in said assembly ranges from about 2 to about 20.
4. The pulse jet printhead assembly according to Claim 1, wherein said printhead comprises from 2 to about 10 printhead dies.
5. The pulse jet printhead assembly according to Claim 4, wherein said printhead comprises from 2 to 5 printhead dies.
6. The pulse jet printhead assembly according to Claim 5, wherein said printhead assembly is a thermal pulse jet printhead assembly.
7. The pulse jet printhead assembly according to Claim 1, wherein each reservoir has walls that are sufficiently high to prevent cross-contamination of samples among reservoirs of said housing.
8. The pulse jet printhead assembly according to Claim 1, wherein said housing comprises at least one excess adhesive flow path.
9. The pulse jet printhead assembly according to Claim 1, wherein said housing comprises at least one discontinuity at a reservoir housing printhead

mating surface that prevents gap formation at the housing printhead interface following adhesive curing.

10. The pulse jet printhead assembly according to Claim 1, wherein at least one of said reservoirs comprises a fluid that includes a biopolymer or precursor thereof.

11. The pulse jet printhead assembly according to Claim 1, wherein:
(i) each reservoir of said multiple reservoir housing has walls that are sufficiently high to prevent cross-contamination of samples among reservoirs; (ii) said housing comprises at least one excess adhesive flow path; (iii) said housing comprises at least one discontinuity at a reservoir housing printhead mating surface that prevents gap formation at the housing printhead interface following adhesive curing; and said pulse jet printhead assembly is a thermal pulse jet printhead assembly.

12. The thermal pulse jet printhead assembly according to Claim 11, wherein said multiple reservoir housing comprises from about 2 to about 100 distinct reservoirs.

13. The thermal pulse jet printhead assembly according to Claim 11, wherein the ratio of reservoirs in said housing to dies on said printhead ranges from about 2 to about 20.

14. The thermal pulse jet printhead assembly according to Claim 11, wherein said printhead comprises from 2 to about 10 printhead dies.

15. The thermal pulse jet printhead assembly according to Claim 14, wherein said printhead comprises from 2 to 5 printhead dies.

16. The thermal pulse jet printhead assembly according to Claim 15, wherein said printhead comprises 3 printhead dies.

17. The thermal pulse jet printhead assembly according to Claim 11, wherein at least one of said reservoirs comprises a fluid that includes a biopolymer or precursor thereof.

5 18. The thermal pulse jet printhead assembly according to Claim 17, wherein said biopolymer is selected from the group consisting of polypeptides and nucleic acids.

10 19. The thermal pulse jet printhead assembly according to Claim 17, wherein said precursor thereof is selected from the group consisting of amino acids and nucleotides.

20. A method of depositing a volume of a fluid containing a biopolymer or precursor thereof on a surface of a substrate, said method comprising:

- 15 (a) positioning a pulse jet printhead assembly according to Claim 1 in opposing relation to said substrate surface; and
(b) actuating said pulse jet printhead assembly to expel a volume of said fluid onto said substrate surface.

20 21. The method according to Claim 20, wherein said method further comprises depositing a volume of a second fluid containing a biopolymer or precursor thereof onto said substrate surface.

25 22. The method according to Claim 21, wherein said method is a method of making a biopolymer array.

23. The method according to Claim 20, wherein said biopolymer is selected from the group consisting of polypeptides and nucleic acids.

30 24. The method according to Claim 20, wherein said precursor is selected from the group consisting of amino acids and nucleotides.

25. A biopolymeric array produced according to the method of Claim 22.

26. A method of detecting the presence of an analyte in a sample, said method comprising:

(a) contacting (i) a biopolymeric array according to Claim 25 having a polymeric ligand that specifically binds to said analyte, with (ii) a sample suspected of comprising said analyte under conditions sufficient for binding of said analyte to a biopolymeric ligand on said array to occur; and

detecting the presence of binding complexes on the surface of the said array to obtain assay data which is employed to detect the presence of said analyte in said sample.

27. The method according to Claim 26, wherein said method further comprises a data transmission step in which a result from a reading of the array is transmitted from a first location to a second location.

28. A method according to Claim 27, wherein said second location is a remote location.

29. A method comprising receiving data representing a result of a reading obtained by the method of Claim 26.

30. A kit for use in an assay that employs an array, said kit comprising:
an array according to claim 25; and
instructions for using said array in an analyte detection assay according to Claim 26.

31. An automated pulse jet printing system, said system comprising a pulse jet printhead assembly according to Claim 1.

32. A multiple reservoir printhead housing for use in a pulse jet printhead assembly according to Claim 1, wherein said multiple reservoir housing is configured to be mounted on a multiple printhead die printhead in a manner that maintains orifice to orifice spacing of an orifice plate component of said printhead.

33. The multiple reservoir printhead housing according to Claim 32, wherein each reservoir element of said multiple reservoir housing has walls that are

sufficiently high to prevent cross-contamination of samples among reservoirs of a printhead assembly that includes said housing.

34. The multiple reservoir printhead housing according to Claim 32, wherein
5 said housing comprises at least one excess adhesive flow path.

35. The multiple reservoir printhead housing according to Claim 32, wherein
said housing comprises at least one discontinuity at a reservoir housing printhead
mating surface that prevents gap formation following adhesive curing at the
10 housing printhead interface in a printhead assembly according to Claim 1.

36. The multiple reservoir printhead housing according to Claim 32, wherein
said multiple reservoir housing comprises from about 1 to about 100 distinct
reservoirs.
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37. A method of fabricating a pulse jet printhead assembly according to Claim
1, said method comprising:

(a) providing a multiple reservoir housing according to claim 30;

(b) providing a multiple printhead die printhead; and

20 (c) stably affixing said multiple reservoir housing to said multiple die
printhead to fabricate said pulse jet printhead assembly.